

rejection be maintained, requests that the Examiner fully address the merits of Applicant's arguments.

Applicant's claimed invention concerns a discovery which addresses a significant problem in the field of semiconductor processing. This problem is the notching effect described and illustrated in connection with Figure 1 of the instant patent application. Applicant's discovery is explained in detail through the original Specification, including in the Summary (beginning at page 5) and the Detailed Description (e.g., page 10, lines 4-8).

With respect to the rejection of claims 1-21, Applicant respectfully submits that the rejection lacks the necessary motivation as is required when a rejection under 35 U.S.C. 103 is based on a combination of references. The Office Action acknowledges that the *Grimbergen* '334 reference fails to teach the invention as a whole, including the performance of a second plasma etch using HBr and nitrogen, and that the combined teaching of the prior art fails to teach the invention as a whole, including the performance of a second plasma etch using HBr and nitrogen wherein nitrogen is used in an amount less than about ten percent of the gas flow. Accordingly, the Examiner concedes that the prior art does not teach the claimed invention as a whole.

Moreover, the Examiner does not appear to recognize that, with respect to the cited prior art teachings, neither of the asserted references addresses Applicant's notching problem. The instant Office Action reasserts these same references with no regard to Applicant's previous arguments in connection therewith and in violation of MPEP §707.07(f).

In an attempt to overcome these deficient prior art teachings, after reading Applicant's Specification and Applicant's discovery for addressing this notching problem, the Examiner alleges that one skilled in the art would read the '395 reference to modify the teaching of the '334 reference by teaching from the '395 patent. Appreciating that there must be some motivation for modifying the prior art, the Examiner explains that the skilled artisan would be motivated somehow through "routine experimentation" and/or to achieve "a reasonable degree of success." Interestingly, the Examiner does not explain or even acknowledge the purpose for this "routine experimentation" or what the

prior art is trying to achieve in order to consider the experimentation efforts to correspond to any "degree of success."

Applicant respectfully submits that the present rejection is one of classic hindsight reconstruction. It is for this reason that the Court of Appeals has repeatedly indicated that there must be adequate evidence to corroborate the alleged motivation to modify the teachings of the prior art. Without such evidence, for almost every patent application based on previously known matter, the prior art could be used to reconstruct the invention claimed. The law, however, has safeguards against such Patent Office practice.

First, there must be evidence **in the cited prior art** to corroborate the alleged motivation to modify the teachings of the prior art. *See, e.g., In re Dembiczak*, 175 F.3d 994, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999), *Ruiz v. A.B. Chance Co.*, (Fed. Cir., December 6, 2000), that the alleged motivation for combining the references is to be suggested by the **references** ("Our court has provided [that the] motivation to combine may be found explicitly or implicitly: 1) in the **prior art references** themselves; 2) in the knowledge of those of ordinary skill in the art that certain **references**, or disclosures in those references, are of special interest or importance in the field; or 3) from the nature of the problem to be solved, 'leading inventors to look to **references** relating to possible solutions to that problem.'").

Second, the law indicates that identification of the problem being addressed is an important part of the statutory requirement that the invention be considered "as a whole" when evaluating whether or not §103(a) applies. *See, e.g., §103(a), Graham v. John Deere Co.*, 383 U.S. 1 (1966).

Additional case law in this regard is provided in the MPEP. For example, MPEP § 2112.02 clearly states that, "The discovery of a new use for an old structure based on unknown properties of the structure might be patentable to the discoverer as a process of using." It further provides that "[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole' which should always be considered in determining the obviousness of an invention under 35 U.S.C. §103." MPEP § 2141.02. In this instance, Applicant has provided a clear assertion of this discovery in the specification: "it has been discovered that adding a small

amount of nitrogen during the endpoint stop prevents the notch without affecting selectivity.” (page 5, lines 10-12) The use of nitrogen to prevent notching addresses a different objective than the endpoint identification of the prior art. Therefore, an artisan skilled in the subject matter of the ‘334 reference would not pursue reducing the amount of nitrogen through routine experimentation, as claimed, since such artisan is unaware of the objective of the instant application, and therefore has no reason (motivation) to pursue this objective. This argument was previously presented but the Examiner has not addressed it and therefore has not complied with her duty.

In view of the discussion above and the fact that Applicant’s use of the nitrogen addresses a unique problem, the evidence of record adequately rebuts the Examiner’s position that the alleged motivation would be present. Each of the other pending claims includes related subject matter also not previously recognized by the prior art and explained in the specification, *e.g.*, at pages 10-12. For example, claim 3 is directed to about two percent of gas flow, claim 6 is directed to the use of a hardmask, claim 7 is directed to a selectivity booster; and since no mention is made regarding such aspects of the invention the necessary motivation is lacking for a *prima facie* case of obviousness.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is encouraged to contact the undersigned at (651) 686-6633.

Respectfully submitted,

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